

# **Portfolio Management Best Practices: Observations from Industry**

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# Outline

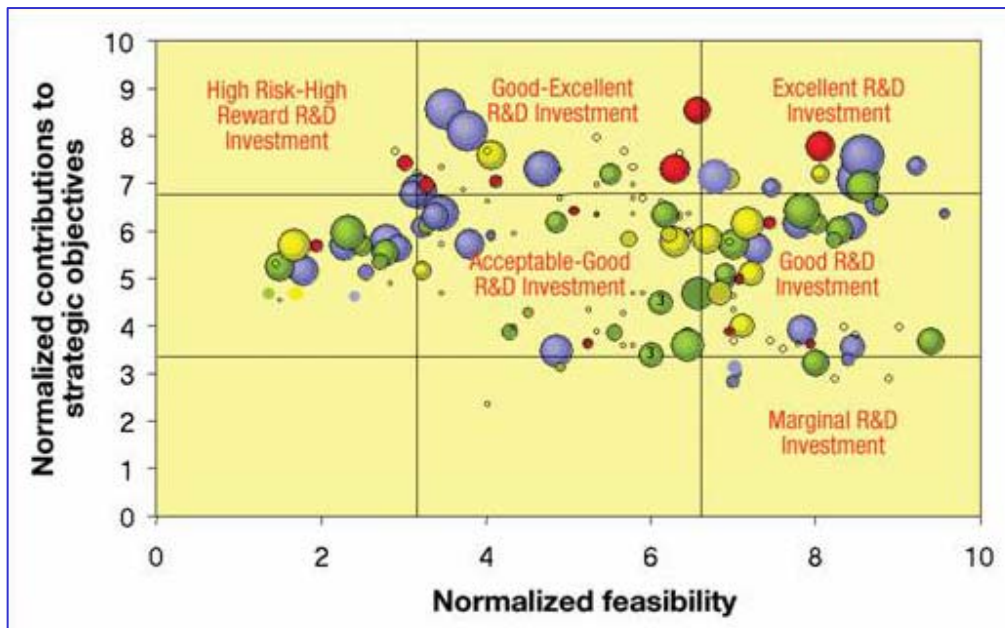
- **Project Overview**
- **Portfolio Management Framework**
- **Evaluation Methods**
- **Critical Success Factors**
- **Comparison to DOD**

**Reviewed work is industry specific.  
Challenge is translating to the Government Space.**



# Objective

- Develop portfolio management tools, processes, and models
- ➡ ◆ Evaluate industry portfolio management processes and best practices
- ◆ Develop/integrate portfolio management tools and models for improved portfolio management performance within US federal agencies

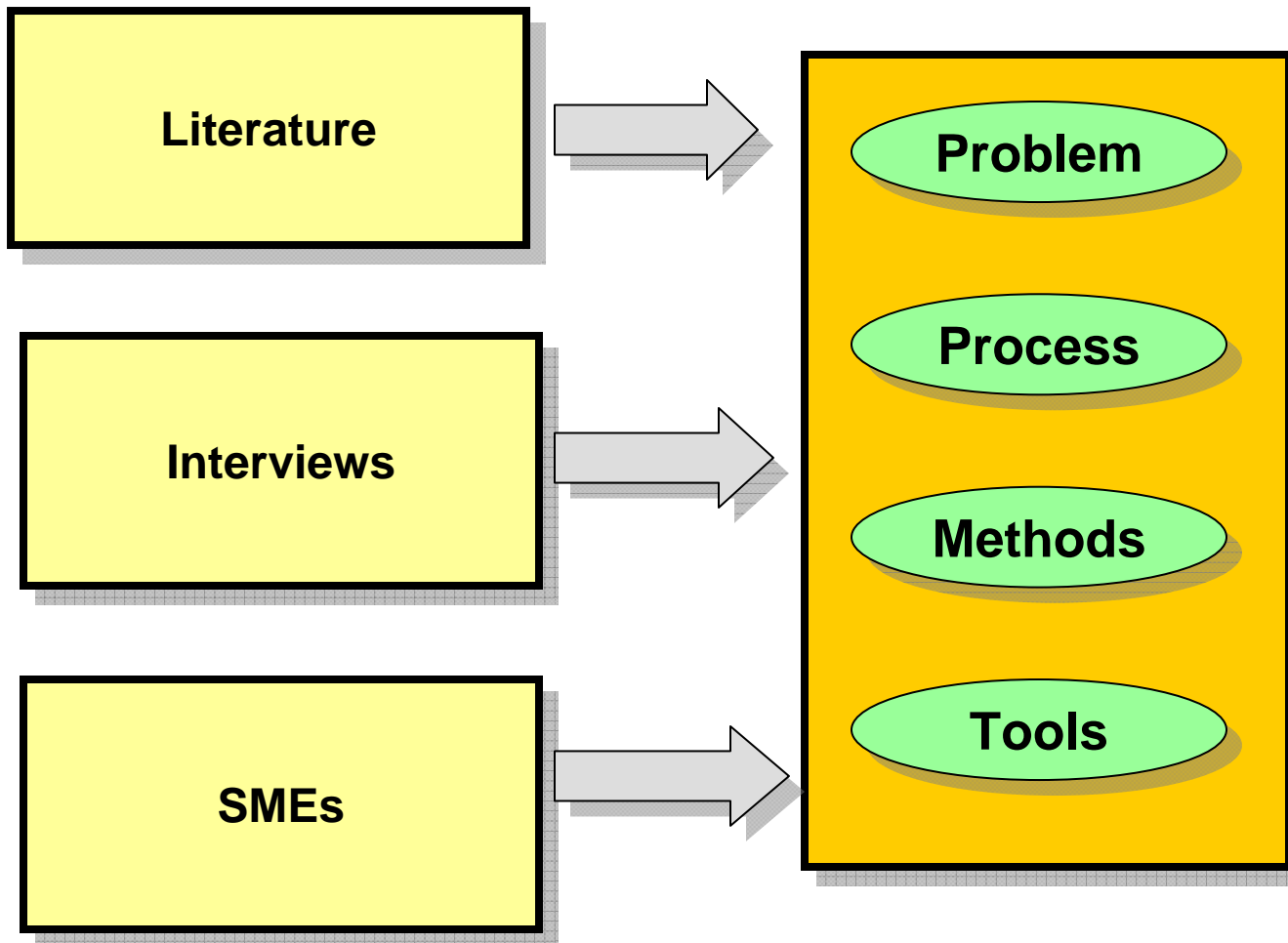


Parmentola and Walker (2004)

**An organization's portfolio management practices should be aligned with enterprise strategy and should include stakeholder participation.**



# Current Study Methodology





# Literature (Sample)

**35  
Companies**

**Portfolio management in new product development: Lessons from the leaders--I**

Robert G Cooper; Scott J Edgett; Elko J Kleinschmidt

*Research Technology Management*; Sep/Oct 1997; 40, 5; pg. 16

**Portfolio management in new product development: Lessons from the leaders--II**

Robert G Cooper; Scott J Edgett; Elko J Kleinschmidt

*Research Technology Management*; Nov/Dec 1997; 40, 6; pg. 43

**205  
Companies**

**Best practices for managing R&D portfolios**

Robert G Cooper; Scott J Edgett; Elko J Kleinschmidt

*Research Technology Management*; Jul/Aug 1998; 41, 4; pg. 20

**55  
Evaluation  
Methods**

**A practical R&D project-selection scoring tool**

Henriksen, A.D. and Traynor, A.J.

*IEEE Transactions on Engineering Management*, 1999; 46, 2, pp. 158-170



# Portfolio Management Challenge (Example Problems)

- Department of Transportation
  - ◆ Research and Innovative Technology Administration (RITA)
    - ★ Approximately two years old
    - ★ Congressional mandate to demonstrate value-added of coordinated and efficient R&D activities
  - ◆ Current research managed by modal offices
    - ★ Own agendas
    - ★ Projects aimed at low level goals
  - ◆ No department wide strategy or authority
- ASD (Networks and Information Integration)
  - ◆ Charged with implementing capabilities based portfolio process
  - ◆ Capabilities enabled by 300 projects across all services
  - ◆ Lack coordination mechanism and authority



# Consequences of No/Poor Portfolio Management

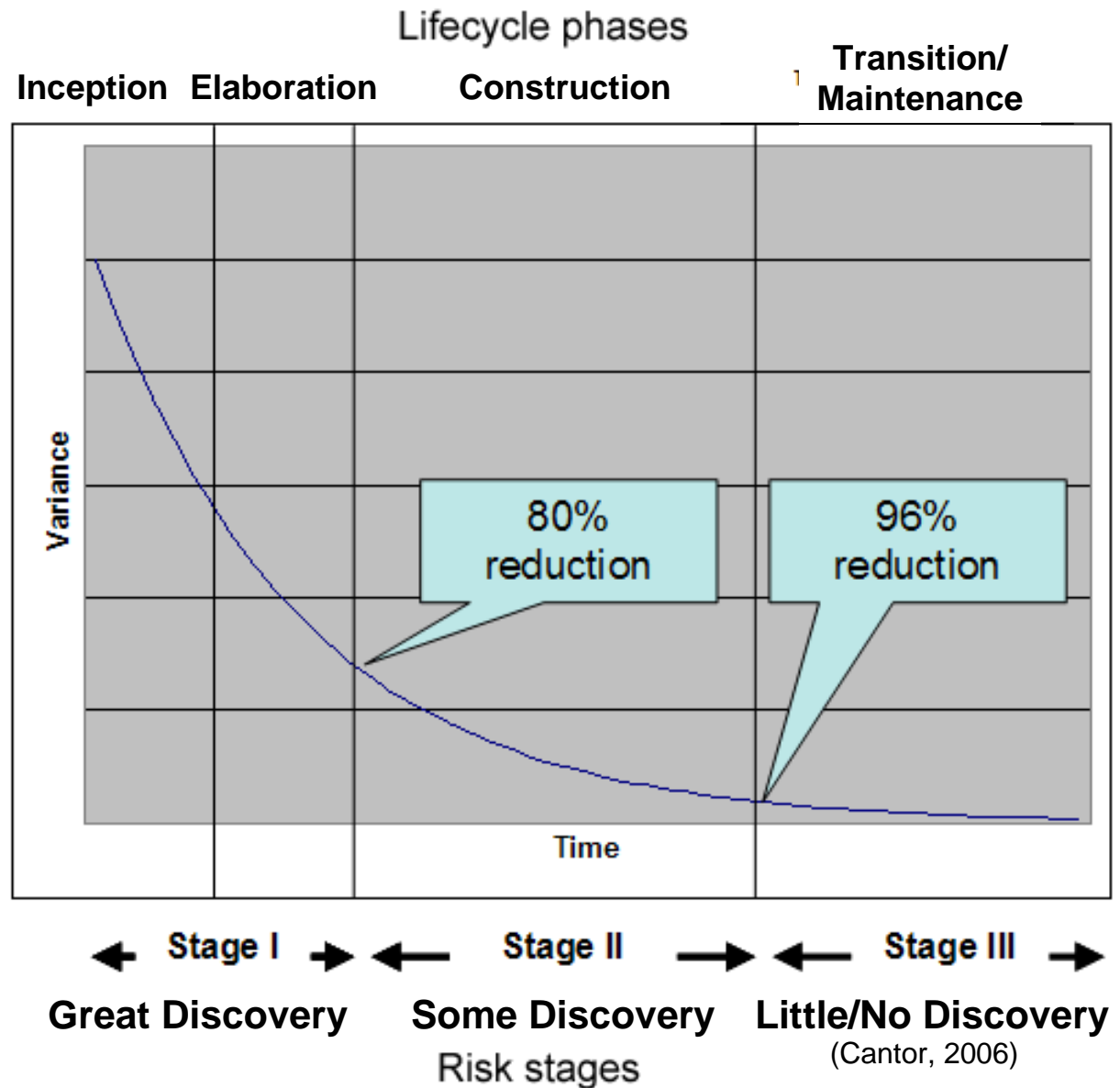
- Lack of focus
- Reluctance to kill projects
- Too many active projects
- Logjams in the process
- Resources and people spread too thin
- Increase of failure rates
- Products too late to market
- Lack of synergy





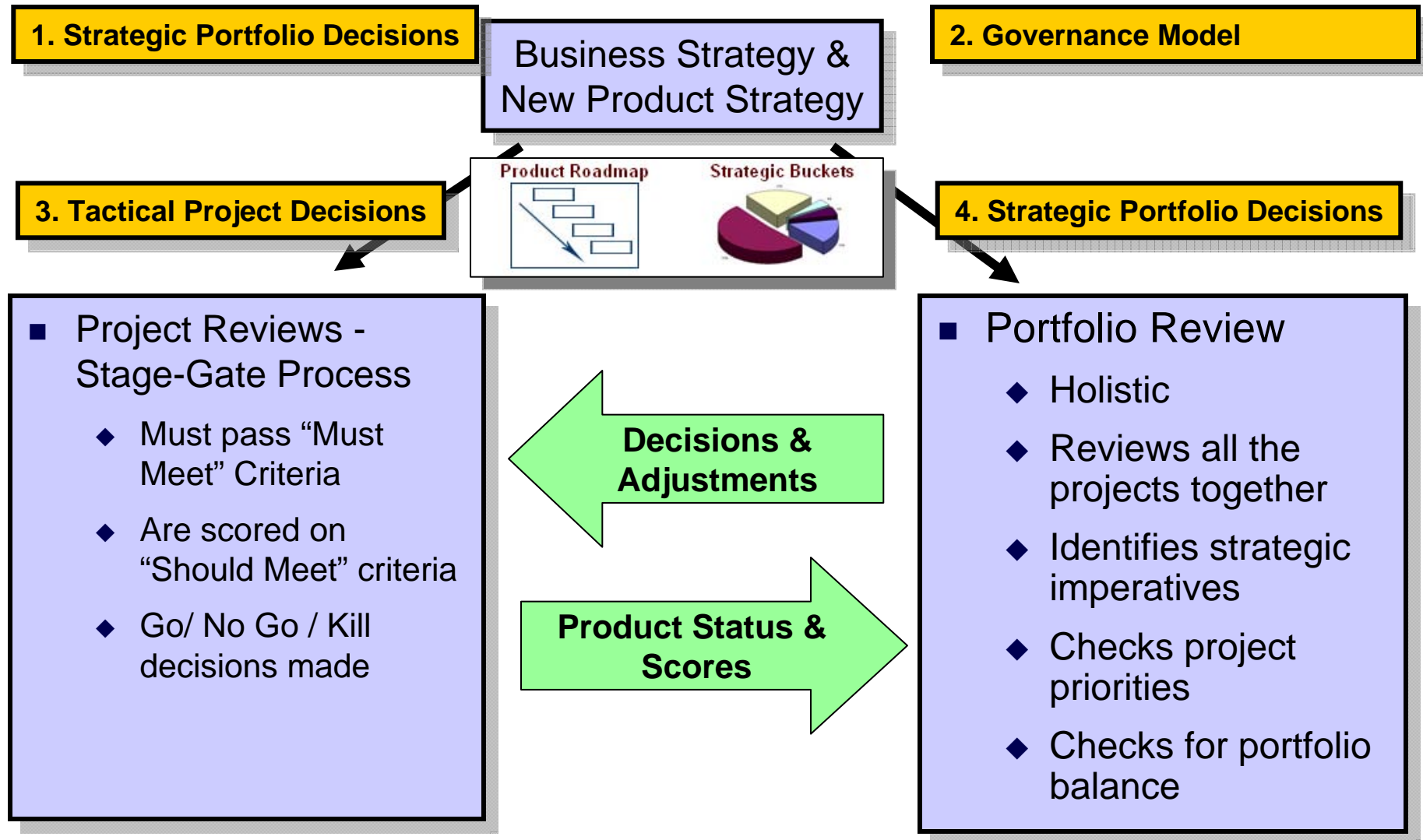
# Product/Portfolio Lifecycle

- Management process varies with phase in the lifecycle.
- Processes and tools should work towards maximum risk reduction.





# Portfolio Management Framework





## **(1) Business Goals**

- **Enterprise goals essential**
  - ◆ **Strategic plan**
  - ◆ **Annual plan**
  - ◆ **Performance measures**
- **Drives portfolio goals**
  - ◆ **Maximize value**
  - ◆ **Achieve balance**
  - ◆ **Strategic alignment**



## (2) Governance Models

- Integrate practices to ensure that the enterprise's product development supports business objectives
- Governance characteristics (Cantor 2006)
  - ◆ Establishes organizational chains of responsibility, authority, and communication
  - ◆ Executes measurement and control mechanisms to effectively drive the organization
- Control loops/feedback an integral part of governance systems and the portfolio management process.



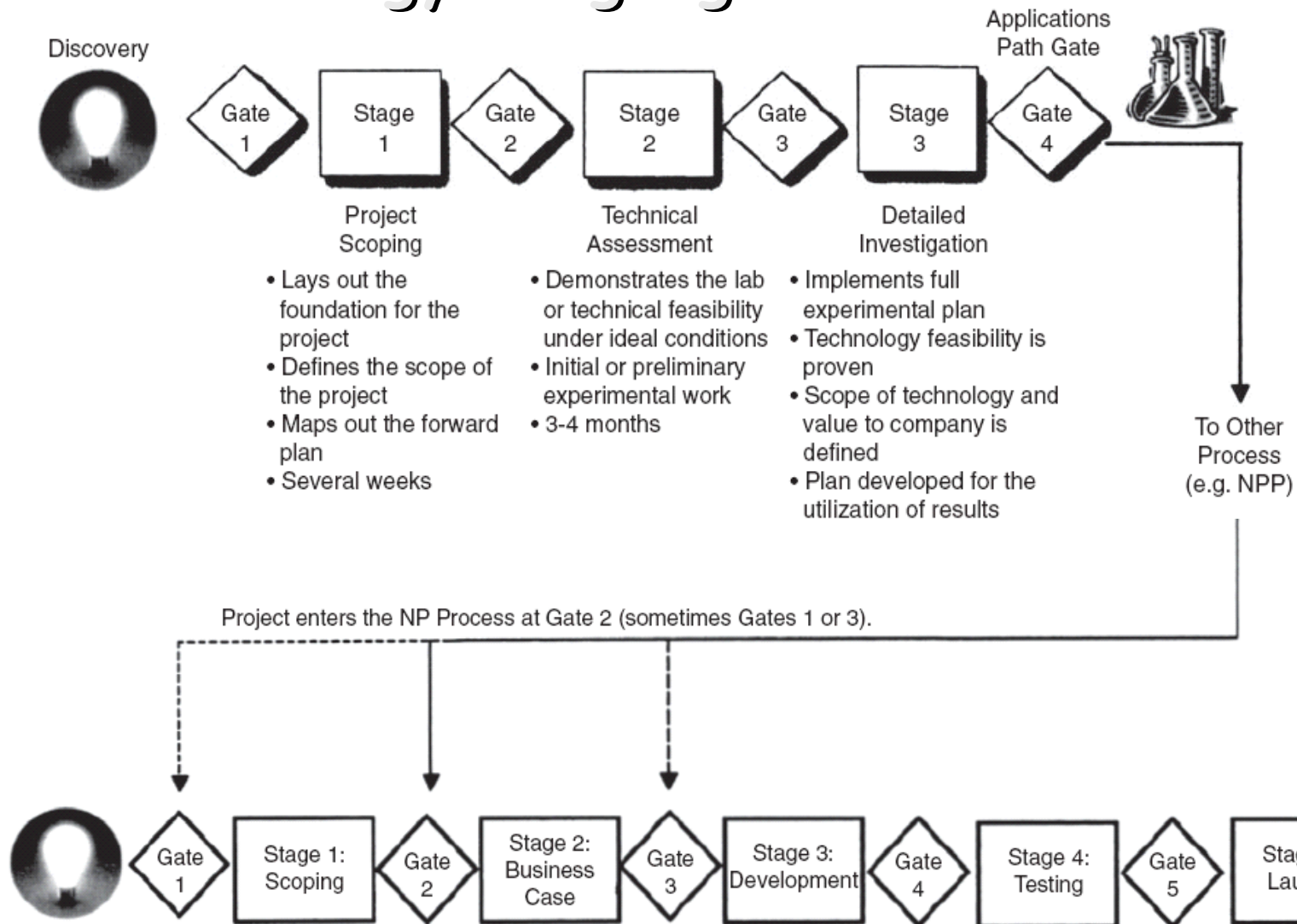
## (3a) Project Reviews

- Critical Questions (Steele)
  - ◆ Who should be involved in program selection?
  - ◆ What kinds of information should be obtained?
  - ◆ What weight should be given to:
    - ★ sources of various inputs?
    - ★ individual variables?
  - ◆ How should conflicts be resolved?
  - ◆ How/to whom should results be given?
  - ◆ How much can changes in business or progress be accommodated?

***When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge of it is of a meager and unsatisfactory kind (Lord Kelvin)***



## (3b) Project Reviews Technology Stage-gate Process



The Standard 5-Stage, 5-Gate Stage-Gate® New Product Process



## **(4a) Portfolio Review – Maximizing Value of the Portfolio**

- **Maximize Value**
  - ◆ Maximize the value of the portfolio of projects against one or more business objectives (e.g. profitability, strategy, acceptable risk)
- **Appropriate Methods for Reaching Maximum Value:**
  - ◆ Net Present Value
  - ◆ Expected Commercial Value
  - ◆ The Productivity Index
  - ◆ Options Pricing Theory
  - ◆ Dynamic Rank Ordered List
  - ◆ Scoring Models
  - ◆ Checklists
  - ◆ Paired Comparisons



## (4b) Portfolio Review – Seeking the Right Balance of Projects

- Achieve Balance
  - ◆ Balance portfolio in terms of risk and return; short- and long-term projects; “small” versus “major” efforts; ongoing versus new projects; business units; etc.
- Appropriate Methods for Balancing the Portfolio
  - ◆ Bubble Diagrams
    - ★ Risk-Reward
    - ★ Market and Technical Newness
    - ★ Market and Technology Risk
    - ★ Market Segment vs Strategic Intent
    - ★ Strategic Impact Matrix
  - ◆ Histograms, bar charts and Pie Charts
    - ★ Capacity Utilization
    - ★ Project Timing
    - ★ Project Types
    - ★ Markets, Products, Technologies
    - ★ Customer Needs



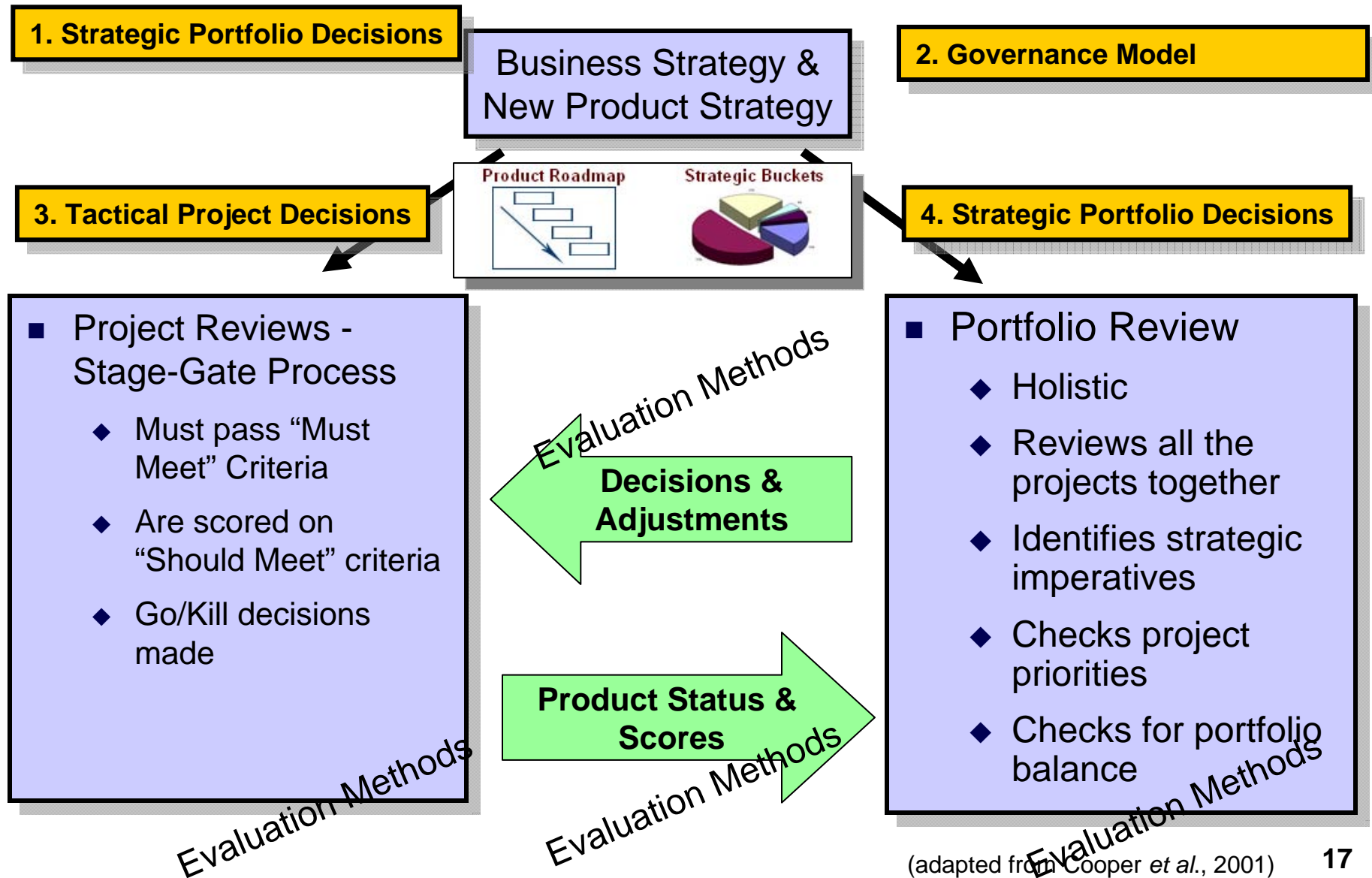


## (4c) Portfolio Review – A Strong Link to Strategy

- Strategic Alignment
  - ◆ Operationalize development mission, vision, and strategy to drive portfolio management processes and project selection
- Appropriate Methods for Aligning Portfolio with Strategy
  - ◆ Top-down approach
    - ★ Technology Roadmaps
    - ★ Strategic Buckets
    - ★ Platform Projects
    - ★ Target Spending Levels
  - ◆ Bottom-up approach
    - ★ Strategic criteria built into project selection
  - ◆ Hybrid Top-down/Bottom-up Approach



# Portfolio Management Framework



(adapted from Cooper et al., 2001)



# Evaluation Techniques Overview

- **Economic Models**—Evaluation and selection as a traditional investment decision
- **Probabilistic Financial Models**—Modified economic considerations which account for risk and uncertainty
- **Scoring Models and Checklists**—Subjective project evaluation based on strategic variables
- **Behavioral Approaches**—Designed to bring Portfolio Management Personnel to a consensus
- **Mathematical Optimization Models**—Mathematical routines that attempt to find the optimal set of projects in order to maximize some objective
- **Decision Support System**—Model that allows Portfolio Management intervention and interaction
- **Mapping Approaches**—Methods to visualize the overall portfolio structure against multiple variables
- **Peer Review**- Evaluation through independent SME evaluation



## Critical Success Factors

- ◆ Portfolio management practices must be aligned with the enterprise strategy.
- ◆ Stage-gate reviews are essential at both the project and portfolio level.
- ◆ Project evaluation conducted first with strong “Go/No Go” decisions; “Go” and “new” projects then feed into the portfolio management activity.
- ◆ Decision making processes must be robust and consistent.
- ◆ Strong senior management ownership and involvement essential; particularly in decision making.
- ◆ Strong metrics and measurements necessary to support evaluations.



## **Discussion: Application to DOD**

- **DOD has many to one, or many to many project to capabilities portfolios.**
- **DOD has multiple, independent, resource owners (the Services) targeting separate products, but in some case working to satisfy the same capabilities.**
- **DOD decision making distributed across services and agencies, potentially with conflicting goals.**
- **Valuation and monetizing projects and portfolio content within the DOD difficult. Makes use of some evaluation methods a challenge.**
- **Involvement of senior decision makers time limited; therefore management tools and processes must be quickly and easily understood.**



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